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dryfit A 500 maintenance-free lead acid accumulators with grid plates and fixed electrolyte acc. DIN 43 534.

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The benefits speak for themselves:

A new generation of batteries for the future has been developed from the world wide proven "dryfit" technology.

The A 500 is the result of this development to provide a battery suitable to the modern demands of the market place.

Higher nominal capacity	The A 500 capacity has been increased by 15% over existing dryfit batteries. **This means:** Greater discharge time for a given current.
Improved power to volume ratio	Approximately 10% more of the inner volume has been utilized. **This means:** Greater efficiency and improved power to weight ratio.
Longer life	Modifications in the dryfit's cellular construction has increased life expectations by 20% over A 200 (at room temperature). **This means:** Lowering of replacement cost and reduced capital cost against time.
Low self discharge	Modifications to both cellular construction and electrolyte have further improved the dryfit's extremely low self discharge characteristics. **This means:** About 50% of the battery capacity remains after 2 years in storage at an ambient temperature of 20 °C. After recharge dryfit A 500 batteries recover to 100% of their nominal capacity.
Very high current discharge	For example, with types up to 16 Ah, during a 5 minute discharge the current could be up to 80% greater than previous dryfit systems, or on a 1 hour discharge it could be up to 30% greater. **This means:** Much smaller batteries for high current and short duration application, e.g. UPS. This saves on equipment size, weight and cost.
Sealed and maintenance free	No maintenance is required throughout the battery's long life. A self sealing valve prevents ingression of air whilst allowing internal pressures to be vented safely in the event of the battery being overcharged.
Installation guidelines	If dryfit A 500 batteries are installed in rooms, containers and cabinets, the installation specifications VDE 0510 Part 2 and 7 must be taken into account. **Attention:** Do not install into hermetically sealed compartments. Installation dimensions: see handling instructions A 500, No. 7900.
Installation in any orientation	The unique gel electrolyte, whilst allowing the cell to function normally on charge or discharge, is sufficiently thyxotropic to allow the cell to be installed in any position. If applied to stationary use the batteries should be installed in an upright position. **This means:** Greater flexibility of design for equipment and greater use of space in existing equipment.
Charging suited to application	The charging voltage is suited to the application of the battery i.e. in float or cyclic (see figure 4). **This means:** The excellent charge characteristics ensure a full recharge within a short time. Discharged batteries, using the maximum charge current, can achieve 70% of capacity in 2 hours (see figure 5).
High cyclic life	The A 500 can be cycled many hundreds of times. **This means:** The dryfit A 500 is suitable for cyclic applications as well as for standby use where the battery is permanently connected to a charger.
Approvals	dryfit A 500 batteries are conform in construction and performance with the standards DIN 43534, DIN 43539 part 1 and 5, IEC 1056 part 1 and 2. Selected types approved by VdS (Federation of German specialist insurers. UL-File No. MH 12547.

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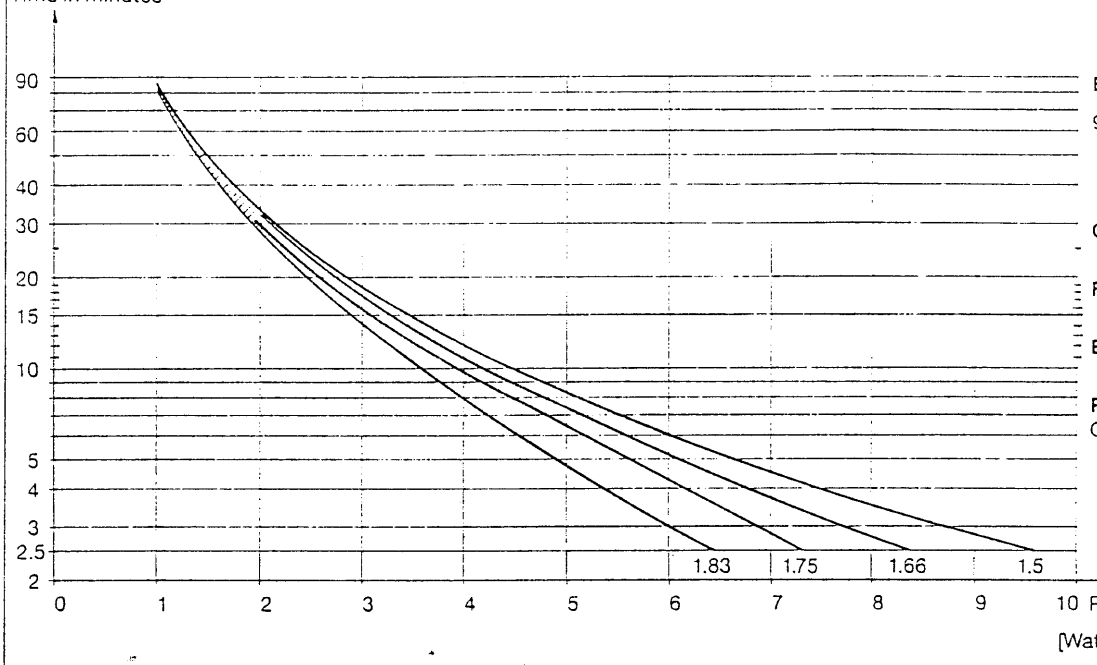
Constant power.

A 500 discharge time subject to wattage for final voltage: 1.83 V, 1.75 V, 1.66 V and 1.5 V/cell.



Example:

given: P = 1200 Watt
t_U = > 10 min.
U_E = 1,75 V/cell
U_{nom} = 48 V

Curve: 1.75 V and 10 min. → → P_S = 4.0

Formula: $Ah = \frac{Watt}{n = cells \times P_S}$

Example: $Ah = \frac{1200}{24 \times 4.0} = 12.5\ Ah$

Result: $C_{nom} \geqq 12.5$ Ah
Chosen: A 512/16 S
or 2 × A 512/6.5 S

Fig. 1

The data is based on the battery discharge tests and is purely descriptive. The data is not applicable to any specific application and is not to be considered as a warranty of liability in accordance with our respective business conditions.

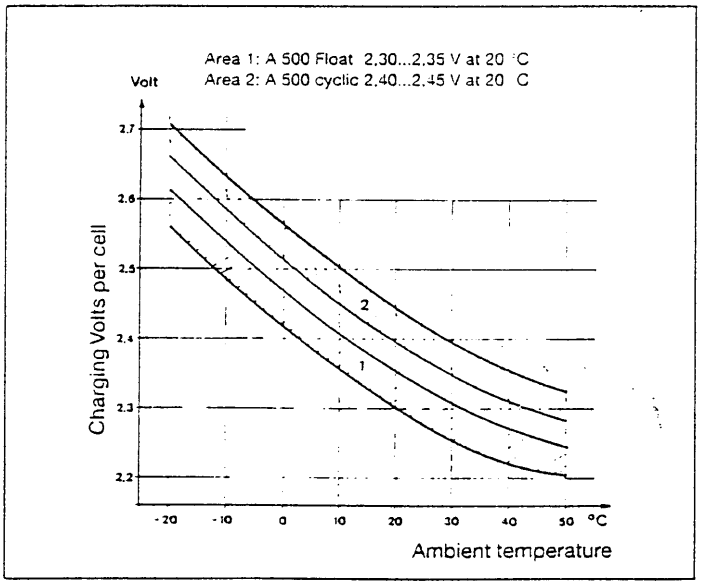


Fig 4 shows the various charging voltages for a variety of operations. When using charging voltages greater than 2.4 V/cell the charge current should be limited to 0.5 A/Ah.

The voltage tolerance is ± 30 m Volts per cell.

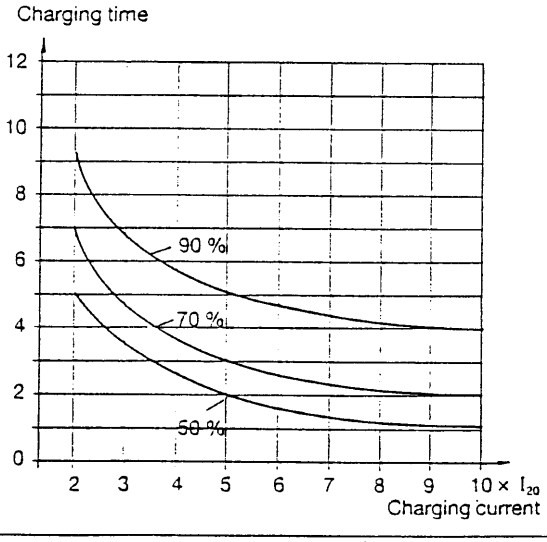


Fig. 5 shows the recharge time subject to the initial charging current to 50%, 70% and 90% of capacity. The graph is based on 2.4 Volt/cell charging voltage.

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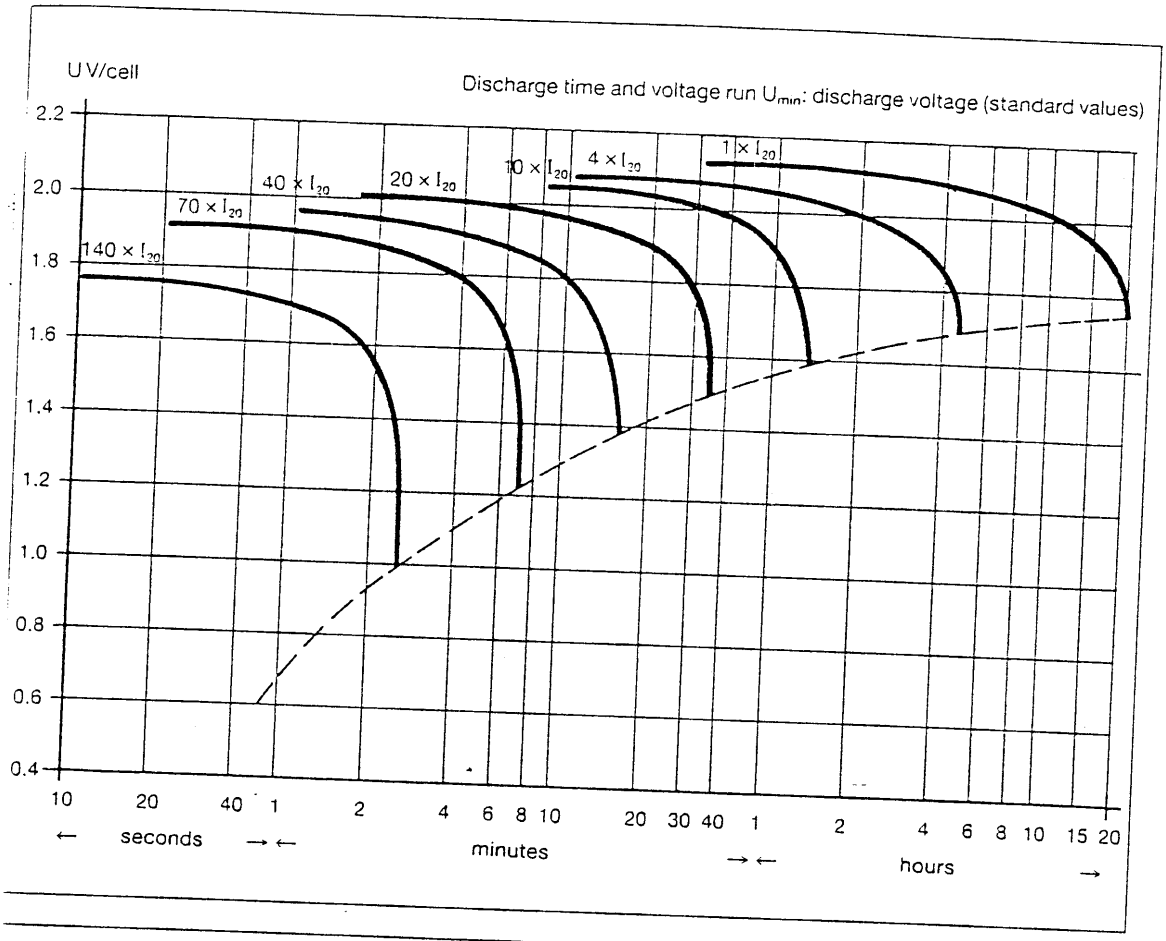

Fig. 2 shows the minimum recommended voltage on a 2 Volt (nominal) cell, dependent on load, e.g. a 10 Ah battery being discharged at 10 Amps.

The 1 × I_{20} current is

$$\frac{10\text{ Ah}}{20\text{ hours}} = 0.5\text{ Amps}$$

therefore

$$\frac{10\text{ Amps}}{0.5\text{ Amps}} = 20 \times I_{20}$$

The voltage run, recommended end voltage and discharge time can be read off from figure 2.

This example shows a voltage drop at the beginning of discharge to 2.02 Volt/cell, the end voltage is 1.5 Volt/cell and discharge time 35 minutes.

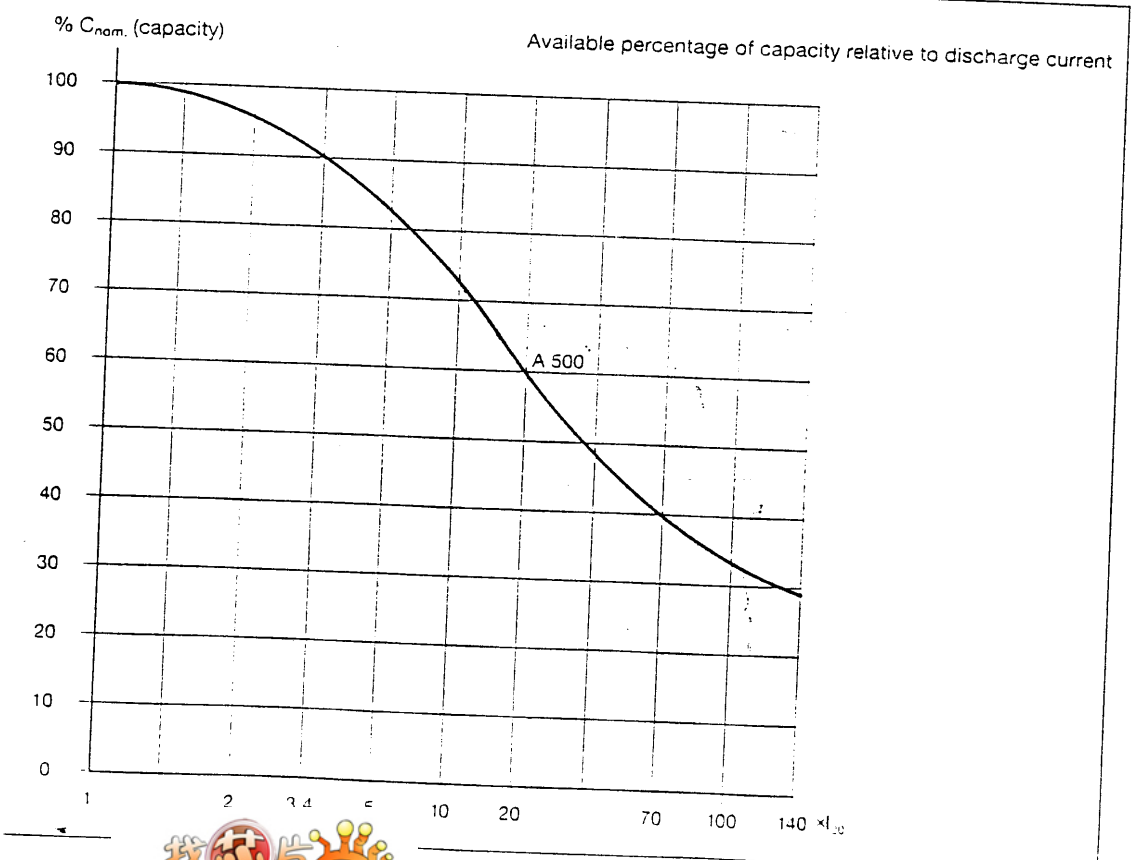

Fig. 3 shows the percentage of available capacity, relative to the amount of discharge current.

$$\frac{10\text{ Ah battery}}{20\text{ hours}} = I_{20}\ (500\text{ mA})$$

$20 \times I_{20} = 10$ Amps

Looking at the curve we see at 20 × I_{20} there is 60 % available capacity at 10 Amps.

The data is for new batteries. When a battery has been cycled or has been used in float applications for a short time further development takes place increasing the capacity of the battery.

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NEW SIZES AVAILABLE

MODEL	NOM VOLTAGE	NOM CAP C20Ah	DIMENSIONS		WEIGHT	TERMINALS
			LENGTH	WIDTH		
A506/1.2S	6	1.2	97.3mm	25.5mm	0.33Kg	FASTON 4.8
A508/3.5S	8	3.5	178.5mm	34.1mm	0.97Kg	FASTON 4.8
A512/1.2S	12	1.2	97.5mm	49.5mm	0.65Kg	FASTON 4.8

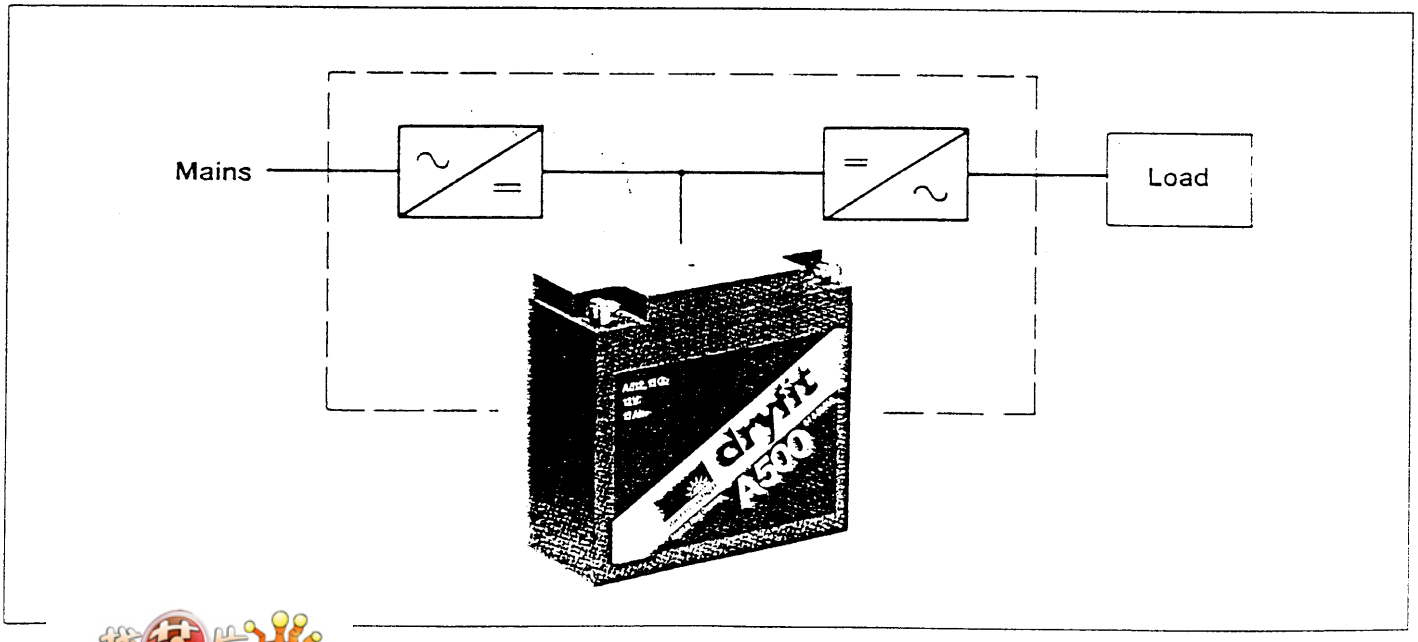
List of models Technical data, weights and measurements

Model No.	Model name	Nom. voltage	Nom. capacity (C_{20}) at 20 hrs. discharge	Discharge current (I_{20}) at 20 hrs. discharge	Max. load*	Max. permissible current over 5 sec.	Weight	Dimensions max. length	max. width	Height to lid's upper edge max.	Greatest height over terminals/ cover max.	Connections
		Volt	Ah	mA	appr. A	appr.	appr. kg	mm	mm	mm	mm	
07 8 95502 00	A 502/ 10.0 S	2	10.0	500	80	300	0.7	52.9	50.5	94.5	98.4	Flat contacts 4.8 mm
07 8 95302 00	A 504/ 3.5 S	4	3.5	175	60	300	0.5	90.5	34.5	60.5	64.4	Flat contacts 4.8 mm
07 8 95312 00	A 506/ 3.5 S	6	3.5	175	60	300	0.7	134.5	34.8	60.5	64.4	Flat contacts 4.8 mm
07 8 95391 00	A 506/ 4.2 S	6	4.2	210	60	300	0.9	82.3	52.0	98.0	101.9	Flat contacts 4.8 mm
07 8 95465 00	A 506/ 6.5 S	6	6.5	325	80	300	1.3	152.0	34.5	94.5	98.4	Flat contacts 4.8 mm
07 8 95523 00	A 506/ 10.0 S	6	10.0	500	80	300	2.1	152.0	50.5	94.5	98.4	Flat contacts 4.8 mm
07 8 95202 00	A 512/ 2.0 S	12	2.0	100	40	240	1.0	173.5	34.1	60.5	64.4	Flat contacts 4.8 mm
07 8 95315 00	A 512/ 3.5 S	12	3.5	175	60	300	1.5	134.0	66.3	60.0	64.4	Flat contacts 4.8 mm
07 8 95432 00	A 512/ 6.5 S	12	6.5	325	80	300	2.6	152.0	65.5	94.5	98.4	Flat contacts 4.8 mm
07 8 95436 00	A 512/ 6.5 SR	12	6.5	325	80	300	2.6	152.0	65.5	94.5	98.4	Flat contacts 6.3 mm
07 8 95525 00	A 512/ 10.0 S	12	10.0	500	80	300	4.1	152.0	98.0	94.5	98.4	Flat contacts 4.8 mm
07 8 95530 00	A 512/ 10.0 SR	12	10.0	500	80	300	4.1	152.0	98.0	94.5	98.4	Flat contacts 6.3 mm
07 8 95565 00	A 512/ 16.0 G 5	12	16.0	800	200	700	6.8	181.0	76.0	167.0	167.0	Screw conn. 5 mm
07 8 95560 00	A 512/ 16.0 SR	12	16.0	800	100	300	6.7	181.0	76.0	152.0	156.4	Flat contacts 6.3 mm
08 8 95615 00	A 512/ 25.0 G 5	12	25.0	1250	200	800	9.6	176.0	167.0	126.0	126.0	Screw conn. 5 mm
08 8 95625 00	A 512/ 30.0 G 6	12	30.0	1500	400	1500	11.7	197.0	132.0	160.0	181.0	Screw conn. 6 mm
08 8 95632 00	A 512/ 40.0 G 6	12	40.0	2000	400	1500	14.8	210.0	175.0	175.0	175.0	Screw conn. 6 mm
08 8 95630 00	A 512/ 40,0 A	12	40,0	2000	400	1500	14,8	210,0	175,0	175,0	175,0	Taper terminal acc. DIN 72311
08 8 95660 00	A 512/ 55,0 A	12	55,0	2750	400	1500	19,0	261,0	135,0	208,0	230,0	Taper terminal acc. DIN 72311
08 8 95664 00	A 512/ 60,0 A	12	60,0	3000	400	1500	21,8	306,0	175,0	190,0	190,0	Taper terminal acc. DIN 72311
08 8 95668 00	A 512/ 65,0 G 6	12	65,0	3250	440	1500	25,0	381,0	175,0	190,0	190,0	Screw conn. 6 mm
08 8 95666 00	A 512/ 65,0 A	12	65,0	3250	440	1500	25,0	381,0	175,0	190,0	190,0	Taper terminal acc. DIN 72311
08 8 95722 00	A 512/ 85,0 A	12	85,0	4250	600	2600	33,0	330,0	171,0	214,0	235,5	Taper terminal acc. DIN 72311
08 8 95750 00	A 512/115,0 A	12	115,0	5750	770	2600	40,3	284,0	267,0	208,0	230,0	Taper terminal acc. DIN 72311

*) only with appropriate counter contacts

Table 1

- The data is based on the battery discharge tests and is purely descriptive. The data is not applicable to any specific application and should not be considered as a warranty of liability in accordance with our respective business conditions.
- Use of curves and charts: The curves are based on typical mean performance data and are meant to estimate the battery size.
- For installation, storage, transport and environmental conditions ask for handling instructions A 500 No. 7900 e.



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DIN safety data sheet

Data Sheet No. CSH00215

Date: 01/1990

Company	Accumulatorenfabrik SONNENSCHEIN GmbH, D-6470 Büdingen 1
Commercial product name	dryfit accumulators, maintenance free

1.1 Chemical characterization of the electrolyte:

hydrogel with 37% sulphoric acid and 6% silicium dioxid

1.2 Form: gel 1.3 Colour: white translucent 1.4 Odour: no

2. Physical data and safety data of the electrolyte — Tested in accordance with:

2.1	Change in physical state		point of solidifcation	-69 °C
			boiling point	112 °C
2.2	Density	(20 °C)	1,30	g/cm³
	Bulk density			kg/m³
2.3	Vapour pressure	(25 °C)	21	mbar
		(°C)		mbar
2.4	Viscosity	(°C)	thixotropic changeable	
2.5	Solubility in water	(°C)	infinite	g/l
	in	(°C)		g/l
2.6	pH value (at g/l H_2O)	(°C)		
2.7	Flash point			°C
2.8	Ignition temperature		inapplicable	°C
2.9	Explosion limits	Lower:	Upper:	
2.10	Thermal decomposition			
2.11	Hazardous decomposition products	with metal: development of hydrogen (H_2)		
2.12	Hazardous reactions			
2.13	Further information			

3. Transport GGVSee/IMDG code: 8 UN No.: 2800 ICAO/IATA-DGR:
GGVE/GGVS: inapplicable RID/ADR: ADNR:

4. Other information:

All data refere to undamaged accumulators !

5. Regulations

For the use of this standard, the form for the safety data sheet is not subject to the reproduction restrictions mentioned in the marginal note on page 1

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Commercial product name dryfit accumulators maintenance free

5 Protective measures, storage and handling

5.1 Technical protective measures

5.2 Personal protective equipment
Respiratory protection:
Hand protection:
Eye protection:
Other:

5.3 Industrial hygiene: after touching wash hands

5.4 Protection against fire and explosion: see VDE 0510 part 2 paragraph 7 specification

5.5 Disposal: To be returned to Sonnenschein Company, scrap dealer or recycling companies.

6 Measures in case of accidents and fires

6.1 After spillage / leakage / gas leakage: no. spillage

6.2 Extinguishing media
Suitable: All known extinguishing media, in case of fire in electrical equipment use CO_2.
Not to be used:

6.3 First aid: In case of etches with electrolyte wash with a lot of water and consult a doctor.

6.4 Further information

7 Information on toxicity of components:

Electrolyte: is strongly etching
Lead: poisonous, do not incorporate

8 Information on ecological effects of components:

Electrolyte: water danger classification (WGK) 1
In case of damage of the battery case dry up the free tightenced gel electrolyte and neutralize with soda, calcium or other neutralizing substances.
Do not deposit lead or electrolyte in inshore waters like lakes, rivers, canals etc. or soil.

9 Further information

The given indications are based on todays knowledge and experiences.
The indications are not ment to be assurances of properties.

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